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ABSTRACT

Presented in the final report are results of a 4 1/2-month research project to test music media for improvement of speech articulation and conversational skills of 46 11- to 21-year-old trainable mentally retarded (TMR) students in New Haven (Connecticut) inner city schools. Included for study aspects are discussions on the literature; stimulus for the study, such as helping the TMR student experience a feeling of self-expression; and methodology, which involved administration of the Templin-Darley Test of Articulation and the Peabody Picture Vocabulary Test (PPVT) to two experimental and two control classes in school A and to one experimental and one control class in school B. Procedures are explained in terms of beginning with a familiar song, engaging in ear-training and tone-matching games, practicing of rhythm patterns, learning a new song, and closing with a familiar song. Detailed are speech articulation activities such as repetitively singing "Good morning, Miss Moss" for practice in diction; and vocabulary development activities such as describing the animals while listening to a recording of the "Carnival of the Animals" by Saint-Saens. Given are results which indicate improvement (but not at the significant level) by the three classes, and significant improvement by the one class (school B) on the PPVT as a result of reinforcement and review by the teacher. Conclusions and recommendations are given to include need for a longer experimental period and for more rote experiences by TMR/disadvantaged students in learning situations. (MC)

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FINAL REPORT

Project No. 2A103
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STUDY OF MUSIC AS TEACHING MEDIA FOR IMPROVEMENT OF SPEECH OF TRAINABLE MENTALLY RETARDED STUDENTS IN INNER CITY SCHOOLS

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New Haven, Connecticut

June 1974

The research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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ABSTRACT

This pilot research project was designed to test music media for the improvement of speech articulation and conversational skills of trainable mentally retarded students in inner city schools.

This study did not expect to replace the traditional teaching techniques of speech correction and therapy but to develop helpful adjuncts to them.

The procedures focused on two areas: (1) improvement of speech articulation and (2) development of vocabulary skills. The instruments for evaluating these areas were: (1) The Templin-Darley Test of Articulation and (2) Peabody Picture Vocabulary Test.

The first area was concerned with experimenting with musical activities that had repetitious but interesting ways to practice diction, to refine the hearing acuity of enunciation, and to augment rhythmic patterns of accented and unaccented syllables of a word, phrase or sentence.

The second area concentrated on the verbal expressions of concepts demonstrated by groups participating in discussions while listening to recordings; and creative body movements and pantomimes.

The researcher supervised the pretesting at the beginning of January 1973 and the posttesting at the end of May 1973 of six classes with a total of forty-six (46) students. They had been previously tested, grouped and classified by the New Haven Public School System as trainable mentally retarded students. At the beginning of the experiment, their ages ranged from eleven years, three months to twenty-one years, three months.

Four of the classes at School A, an inner city school, were divided into two experimental classes and two control classes. Two classes at School B, also an inner city school, were divided into one experimental class and one control class. The researcher met each of the experimental classes three times a week for twenty-five minute sessions.

Although some sessions were subjected to change due to the moods of the students or other circumstances, the researcher followed a general music lesson plan for each session: (1) begin with a familiar song, (2) enjoy ear-training or tone-matching games, (3) practice rhythm patterns, (4) learn a new song, a new verse of a recently learned song or review old songs, and (5) close with a familiar song.

Each area of study was limited in length of time: long enough for successful repetition and short enough for interest span.

In the study of the statistics of the experiment: the analysis of covariance was used for the posttest scores using the pretest scores as a covariate. The level of significance was .05. The analysis of the final results for both tests showed that the three experimental classes showed improvement but not enough to be considered statistically significant.

Because the two classes at School B were self-contained and independent, the teacher of the experimental class rearranged her learning units so that she could review and reinforce the musical activities as presented by the researcher.

In a separate analysis of the test scores at School B, the experimental class showed statistical significant improvement in the Peabody Picture Vocabulary Test.

The experimental classes at School A were scheduled differently into many multi-level learnings groupings. It was not possible for the teachers with the two experimental classes at School A to review or reinforce the musical activities as presented by the researcher.

Thus the researcher concluded that music media could be an important tool for improving speech articulation and vocabulary skills first through enjoyable imitation, then repetitious practice and, finally, discriminating listening.

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CHAPTER I

INTRODUCTION

Identifying the Problem

This was a pilot project to test classroom methods and materials of music for improving the speech articulation and vocabulary communication skills of the trainable mentally retarded (TMR) students in special education classes in inner city schools of the New Haven Public Schools. The various media and materials of music education were studied as to their utilization for the improvement of the diction and the oral communication of inner city TMR students.

The trainable mentally retarded students were chosen for this project because many studies have shown that speech defects are more common among them than among average students. The inner city schools were selected after it was noted by Murray Rothman, Supervisor of Special Education for the New Haven Public Schools, that eighty-five percent of the TMR classes are located in the inner city schools. Mr. Rothman also stated his belief that this percentage would be representative of many other school systems throughout the country.

The researcher believed that the TMR student's speech abilities are very closely related with his daily accomplishments: success or failure.

Because speech disabilities have very complex origins and reinforcements, the researcher desired to give the TMR students two opportunities for speech improvement in musical activities:

(1) the joy of successful accomplishments in a classroom situation, and
(2) the comfort of indirect practice of speech skills.

Another concern of the researcher was that TMR students should have some genuine successes, so noted by their peers and their teachers. A few real successes in music could bolster the near misses and temper the sad failures of other study areas.

Surveying the Literature

In view of consistent findings of surveys, speech defects have been more common among the educationally subnormal students than among normal.[1]

Stammering, indistinct articulation, and general speech retardation are found more frequently among the subnormal students. These difficulties may not be due to physical defects in the speech mechanism or in the brain but may be the result of some deepset emotional condition caused and perpetuated by the mental condition.[2]

Speech or oral communication is very important to the individual's ability to establish a social and personal life in his community. Speech is a basic tool for learning. Language functions as an expression of the emotions as well as a means of thinking.[3]

A careful preliminary search of bibliographies in abstracts, articles, books, doctoral researches and other study projects failed to reveal any previous investigations of this particular type or in this specific manner.

The singing activities discussed in books on the education of the mentally retarded children neglected this correlation of speech and singing. One book was found that related these two activities: Sing Your Way to Better Speech, by Gertrude Walsh and published by E. P. Dutton and Company, Inc., 1947. But there were no references as to the book's use for the mentally retarded or for inner city students. In fact, this researcher noted that most of the examples might not be suitable in levels of difficulty nor in areas of interest for the mentally retarded students or for inner students.

In reviewing both the general and specialized research and published materials in music for the exceptional

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[1]Tansley and Guilford, The Education of Slow Learning Children. London: Routledge and Kegan Paul, 1961, p. 75.

[2]J. P. B. Dobbs, The Slow Learner and Music. London: Oxford University Press, 1966, pp.7-8.

[3]Cruickshank and Johnson, editors, Education of Exceptional Children and Youth. Englewood Cliffs, N. J.: Prentice-Hall, Inc. 1967, p. 389.

student, the researcher noted that there were only six books published for the area of music therapy or music for the exceptional child. All of these books stress the one-to-one relationship of child to therapist rather than the special classroom of an inner city school.

The Stimulus for the Study

Language skills (clear articulation and vocabulary achievement) are most vital for today's child and tommorow's adult. The skills to express oneself verbally and to comprehend instructions, comments or statements by others whether in business or social contacts are as important as the abilities to read and write.

The mentally retarded students need vocabulary skills in order to understand their own experiences and to be able to discuss their experiences with their peers and their parents. These language arts are very important to the individual's ability to establish a social and personal life in his community. Language functions as an expression of the emotions as well as a means of thinking.

Training in listening for comprehension of verbal instructions and explanations also must be studied and practiced by the mentally retarded students. Their education should also prepare the skills of communication for social and business contacts and should help them have happy and efficient relationships as part of their skills for earning a livelihood. While mentally retarded students are in school, they are gaining by instruction and encouragement in rehearsal for life as an adult after leaving school.

Alienated somewhat from their environment, the mentally retarded students cannot keep up with the mental development of the average students. The amount of their experiences for social growth frequently may be limited due to the many physical tests and examinations as well as numerous sessions with the school psychologist and guidance counselor. Frequently these reminders of failures have been scheduled during the play or relaxation periods so as not to interfere with the "essential" subjects of reading and mathematics. Thus the mentally retarded students have missed too many companionable associations with their peers. These creative or play periods are a main source of possible successful activities, a necessary element for positive attitudes and renewed efforts for all study subjects.

Balanced educational learnings of cognitive (basic studies of reading and mathematics), affective (creative and expressive activities), and motoric areas (physical

education) are as important to the all-round growth of the TMR students as they are for the average students.

This research project concentrated on the affective or creative and expressive experiences primarily. These were various musical activities to enable the mentally retarded students to relax, to unfold, and to "let themselves go." Thus they would gain in confidence, would develop more positive attitudes toward their surroundings and would become more capable of participating in their school studies.

It was the researcher's belief that the abilities to speak and to converse are strongly influenced by social interactions and by group experiences, both of which can be fostered in music activities and which bring some elements of success.

Music activities can help the mentally retarded student develop the creative abilities to experience fun and pleasure within the group. Some of these satisfactions can assist in developing these social skills, all necessarily expressed in speech and conversation skills:

(1) to be recognized and accepted as a member of a group,
(2) to have a sense of accomplishment and success recognized by his peers,
(3) to experience a feeling of self-expression through acceptable contributions to the group's singing and conversations, and
(4) to have a feeling of belonging, of self-worth as a member of his group.

These musical activities were singing songs, body movement of dancing, rhythm instrument exercises and listening to recordings. It was believed that the successes in musical activities might fortify the TMR student whose verbal skills might be trapped in a negative spiral of failures limiting his social development and relationships. As the music activities offer social improvements, the TMR student should feel more confident in the most important social skill: speech and conversation.

CHAPTER II

STATEMENT OF PROBLEM AND OBJECTIVES

The Problem

General Statement

The purpose of this pilot project was to test the uses of music as teaching media for the improvement of speech articulation and vocabulary skills of trainable mentally retarded (TMR) students in inner city schools.

Specific Objectives

(1) How can singing songs and musical games be used for the improvement of articulation of individual words?

(2) How can playing of classroom and rhythm instruments be coordinated to encourage rhythmic speech and melody patterns in words, phrases and full sentences?

(3) In what ways can listening to orchestral recordings actuate pantomime in body movement for the development and the improvement of vocabulary?

(4) How can group discussions while listening to contemporary popular songs, Broadway show tunes, and short classical recordings stimulate and expand the use of vocabulary in the social conversational skills?

(5) How can token reinforcements be used as rewards for encouragement to try new verbal activities or skills?

Accessary Objectives

(1) to encourage activities for experiences in fun, group participation, and achievement,

(2) to develop positive social attitudes through improved skills in singing and speech,

(3) to understand and enjoy conversation skills of talking and listening, and

(4) to experience body movements for a sense of rhythm and muscle coordination.

Basic Assumptions

It was assumed that the functions of singing and speech are closely related since they use the same muscles, breathing mechanism, bone structures and body cavities.

It was also assumed that singing can facilitate a slower and more manageable pace for improving the articulation of the TMR students.

It was further assumed that music is a social means of communications, both verbal and non-verbal, and that success in this area would be a benefit to the social development of the TMR student to be utilized in vocabulary skills in conversations.

It was likewise assumed that the TMR student would benefit from successful experiences as an individual in his classroom or as a group member of this class.

Basic Hypotheses

I. It was hypothesized that singing can improve the articulation of trainable mentally retarded students in inner city schools.

II. It also was hypothesized that the vocabulary of trainable mentally retarded students in inner city schools could be increased through group discussions centered on the texts of songs and through guided activities in games and pantomime experiences organized to recordings.

CHAPTER III

DESCRIPTION OF METHODOLOGY

Subjects

The population for this experiment consisted of six inner city classes in the New Haven Public School System. The students of these classes had been previously tested, grouped and identified as trainable mentally retarded students. Their chronicle ages at the beginning of the experiment in January 1973 ranged from eleven years three months to twenty-one years three months.

Four classes were in one school which shall be known in this project report as School A. The other two classes were in another school which shall be known in this project report as School B.

Instrumentation

Two nationally standardized and validated tests were administered to all of the students:

(1) The Templin-Darley Test of Articulation, and

(2) The Peabody Picture Vocabulary Test.

The subtest or Screening Test of the Templin-Darley Test of Articulation was chosen because it could be given very quickly so that the test scores would not be subjected to the variance of boredom, short attention span, build-up of antipathy or fear of the test, and of time for recall of other unfavorable experiences of frustrating tests.

The Peabody Picture Vocabulary Test was chosen because the subjects were not required to read or speak so that neither non-readers nor speech-impaired students of the trainable mentally retarded classes would be handicapped in their scores. There was no time limit on the test so as to make the trainable mentally retarded student feel rushed or pressured.

Design

Of the four classes at School A, two classes were designated as experimental classes and two classes became the control classes. One of the two classes at School B was designated as the experimental class. The other class became the control class.

Due to transfers, illnesses or other causes for absences, the total number of subjects for the pretesting and posttesting was as follows:

TABLE I

Distribution of Subjects

		Experimental Classes		Control Classes
School A,	Class #1	6	Class #3	7
	Class #2	7	Class #4	10
School B	Class #5	8	Class #6	8
Total		21		25

This experiment was a non-equivalent control design since the control group and the experimental group did not have pre-experimental sampling equivalence.

Both groups constituted naturally assembled collectives such as classes of pretested and identified trainable mentally retarded students of classes in inner city schools and of students with speech problems.

It was expected that the main variance would be the geography of the schools. This variance would be limited since both chosen schools were inner city schools thus indicating more similarities than disparities.

Procedures of Data Collection

Both the experimental group and the control group were pretested at the beginning of January 1973 and were posttested at the end of May 1973.

The researcher met each experimental class three times a week.

The control classes had the usual or normal activities of trainable mentally retarded classes in an inner city school: the services of their classroom teachers and the city assigned speech specialist or therapist.

It was expected that the control group would establish "average" improvement of speech articulation and growth of vocabulary of a trainable mentally retarded class as the history and maturation of both the experimental group and the control group should be as clearly related as possible without having randomization.

Statistical Analysis

Analysis of the covariance was made with the pretest scores used as a covariate.

CHAPTER IV

DESCRIPTION OF ACTIVITIES

General Procedures

The general procedures for this pilot project were based on the premise that language skills are first imitated, then practiced, and finally, acquired by the refinement of guided studies.

These general procedures had three areas of concern: (1) enjoyment and enrichment, (2) skills, and (3) concepts. In that sequence, the enjoyment and enrichment experiences would build success for the foundation of skills. The development of skills would give understanding of concepts.

Coming in full circle, the trainable mentally retarded student would have further enriched activities which would lead to more advanced skills which in turn would develop more background, information and abilities for larger and more complex concepts.

The researcher was concerned with the use of music methods and materials for the improvement of speech articulation and conversation skills of trainable mentally retarded students in inner city schools.

The use of music methods and materials was not expected to replace the traditional teaching techniques for speech improvement or therapy but to be used as helpful adjuncts to them.

In preparation of the selection and coordination of musical materials and activities, a review was made as to the basic causes of poor language and speech for the trainable mentally retarded students.

One of the most important elements in the dysfunction of speech or language communication was the psychological factor. Most of the trainable mentally retarded students live in a very sheltered, protective and tense environment. Parents have difficulty in accepting the retarded student as he is. As a result of this concern, they tend to shelter and protect the student and thus isolate the student from other students.

The isolated retarded student is limited in his opportunities of interchange in talking. Therefore, he has a limited background of experiences in the uses of words for vocabulary building. Another result of this isolation is the limited opportunity to practice techniques of expression: the discussions and comparisons with friends of their shared experiences.

Good speech develops in an encouraging and approving atmosphere. Too often the retarded student has had too few experiences of encouragement and approval and too many experiences in insecurity, timidity and shyness.

The retarded student is too inexperienced in interpersonal relationships to be aware of vocabulary for abstractions and generalizations from his experiences.

With these problem areas in observation, the researcher developed three general procedures to be considered as background procedures with each of the specific procedures.

General Objectives

(1) to develop a classroom atmosphere of encouragement, approval, and cooperation between the researcher and the class students,

(2) to recognize and accept every child's contribution to the classroom musical activities, and

(3) to encourage peer recognition and understanding among the students.

Specific Procedures

This pilot research study had five specific objectives which were divided into the two basic areas for testing the two hypotheses of the use of music activities as teaching media in the improvement of speech articulation and vocabulary skills.

The researcher met each experimental class three times a week. Each class period was twenty-five minutes in length. Most of these class sessions utilized a general music lesson plan as follows:

(1) to begin with singing a familiar song,

(2) to have an ear-training or tone-matching game which utilized an initial consonant and one vowel

beginning with the plosive, then the fricative and ending with the nasal consonants, or a short phrase or words.

(3) to experience a few rhythm patterns with clapping, rhythm instruments, or body movement activities,

(4) to learn a short song, a new verse to a recently learned song, or review old songs, and

(5) to close with the singing of a familiar song.

Both familiar and new songs were chosen for their reinforcement of articulation skills as well as conversational interest to inner city school children.

Each area of study was limited in length of time: long enough for successful repetition and short enough for interest span. The researcher was concerned that only a limited amount of learning was possible in each class session and that too long a time for one activity might recall past struggles or even failures. It was the opinion of the researcher that short, successful "appetizers" were excellent motivators for learnings in the next class session.

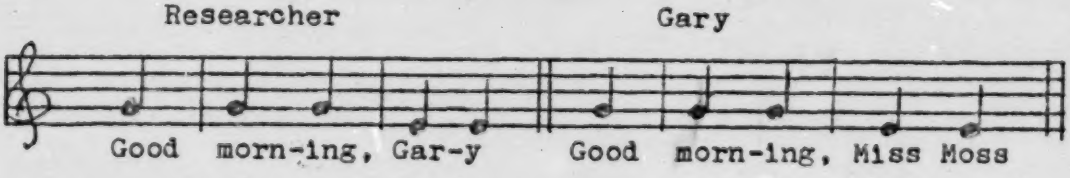
The first hypothesis to be tested was concerned with the first and second specific objectives which were centered on the improvement of speech articulation.

Procedures for Specific Objective #1: How can singing songs and musical games be used for the improvement of articulation of individual words?

The area concerned in this specific objective covered the coordination of the smallest group of muscles in the speech mechanism: those required for the enunciation of one initial consonant with one vowel. Some examples of these procedures are as follows:

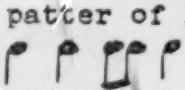
A. Tone-matching games were used to involve repetitions of consonants in short phrases sung by the researcher and echoed by the class or individual students.

Example:



Other short phrases with similar short melodies were sung by the researcher and echoed by the class or individual students. Every student would have a turn to participate.

B. Ear-training games of recognition of verbal sounds were used to improve the student's acuity of hearing and listening to nonsense syllables using an initial consonant and one vowel.

A basic rhythm patter of long, long, short-short, long, L L SS L, or  was used in many activities.

Flash cards, each with one large printed consonant, were designed with a dark color for the voiced consonants and a light color for the voiceless consonants:

Example:

B - red D - emerald green V - orange G - purple
P - pink T - light green F - lemon yellow K - lavender

Example:

The researcher would speak and hold the flash card with the letter:

Bah	Bah	Bah Bah	Bah	(rhythm of L L SS L)
Poo	Poo	Poo Poo	Poo	
Day	Day	Day Day	Day	
Tee	Tee	Tee Tee	Tee	and others.

C. Ladder scales and musical syllables were incorporated to teach concepts of high/low, soft/loud, fast/slow, up/down and same/different.

Example:

do	so
ti	fa
la	mi
so	re
fa	do
mi	ti
re	la
do	so

The researcher used hand levels (palm down and at right angle to the body) to demonstrate higher or lower position of the syllables for rote learning as the trainable mentally retarded students could not read the syllables on the chalkboard.

D. Simple folk songs with considerable repetition of lines of text were used to help the student to improve the actual sounds that he uses to sing or speak.

Example:

Rise and Shine
Come and go with me to that land
Wise man built his house upon the rock
Bingo
Old MacDonald had a farm
Kum Ba Yah
She'll be coming round the mountain
I live in the city

Procedures for Specific Objective #2: How can playing of classroom instruments be coordinated to encourage rhythmic speech and melody patterns in words, phrases and full sentences?

The scope of this specific objective was centered on two basic speech defects:

(1) retardation of speech due to lack of associations between words and concepts; and

(2) rhythm of speech due to stammering or too fast jumble of words.

The procedures of this specific objective were concerned with speech dexterity of the trainable mentally retarded students, the coordination of syllables into words for short phrases or rhythm patterns and the further coalition of word grouping into sentences.

A. Drum sticks were used for both sounds and body coordination for rhythmic coordination. First, the researcher placed only one drum stick on the desk in front of each student. The student then was instructed to pick it up. The researcher made no attempt at this time to teach "right or left hand."

The student then echoed rhythms played by the researcher: Long (1) or Short-Short (S S).

Example:

(1) L L L L
(2) L L SS L
(3) L L L ∑ (the student spoke "sh" for the rest)

These patterns were practiced as other examples of

ear-training with primary emphasis on pattern (2) L L SS L.

After pattern (2) was performed fairly easily by the dominant hand, the student was instructed to put the drum stick in the other hand. This experience provoked some laughter at how different it felt to use the other hand.

The same patterns were practiced. Now the patterns were somewhat familiar but the new learnings were the experiences of using the non-dominant hand with the drum sticks.

After this experience became fairly comfortable, the student was given a second drum stick. Now the student played the same rhythm patterns with both hands. No attempt was made at this time at alternating right/left hands in the rhythm patterns.

Since the students participating in this pilot project were teenagers, the motivation of using real drum sticks was very high. The researcher was of the opinion that in a longer research period, the students would have become fairly comfortable using patterns that alternated left and right hands.

B. Accented and unaccented syllables of students' names, places and objects in the classroom were played with the drum sticks.

Example:

George Browning, Peggy Bailey, John Smith

L S S S S S S L L

New Haven, Hartford, New York City, Washington, D. C.

L S S L L L L S S S S L L L

chalk board, window shade, moving leaves, blue bird

L L S S L S S L L L

Tambourines, maracas, and claves were also used in these exercises. These rhythm instruments were used for the basic pattern: L L S S L. Later the rhythm was played on these instruments at different physical levels: high, middle, low, front, behind, left hand, right hand, etc.

C. Familiar songs were sung and played by the drum sticks for each syllable of the text. The next step, if a longer research period had been available, was for several students

to play the basic pattern while the remainder ot the class sang the words of the song.

With all of the rhythm instruments, particularly the drum sticks, special opportunities for the students to "bang" the instruments very fast were provided. Otherwise, the students "played the musical instruments" and did not "bang like a baby."

D. Orff techniques and patterns were used with rhythm pattern(1) L L L L. Five basic Orff techniques were utilized.

(1) clap C (hands)
(2) snap S (fingers)
(3) patschen P (pat thighs)
(4) tap T (one or both feet)
(5) nod N (head)

Example:

C C C C
C C S S
C P C P
C T P T
C C C N and other combinations.

The researcher would illustrate one pattern and the students would echo it.

The second hypothesis to be tested concerned the third and fourth specific objectives which were centered on the development of vocabulary skills in these four problem areas:

(1) poor background of speech and language (lack of opportunity to talk with peers or with adults),

(2) limited background of experiences (shortage of activities for discussing or remembering events with others),

(3) discouraging emotional and social factors (shyness from insecurity in language or withdrawal from fear of asking questions and seeking help), and

(4) poor capacity to generalize (limitations of thinking because of the extra need to deal with words for abstractions).

Procedures for Specific Objective #3: In what ways can listening orchestral recordings actuate pantomime in body movement for the development and the improvement of

vocabulary?

This specific objective pertained to stretching the trainable mentally retarded student's attention span for sounds. In general, the student was encouraged to listen to various musical recordings: short compositions with only one mood; those with two moods for A B A ternary form, those with several moods that could be grouped for a short story sequence. The recordings were selected from classical and contemporary popular music.

A. Basic concepts of high/low, slow/fast, and loud/soft were introduced while listening to records by expressing body movements.

Example: Music: Brasilia, a contemporary instrumental popular composition
Move fingers fast(slow) when the music is fast(slow).
Move hands high(low) when the music is high(low).
Move hands and arms big(small) when the music is loud(soft).

Discussions were encouraged as to how you knew when the music expressed one idea, changed to a different idea and sometimes expressed two ideas at the same time: loud and high.

A simplified version of this exercise was frequently used as the first activity of the general music lesson plan substituting for the opening familiar song. At this activity, the body movement was led by the researcher and imitated by the class students. The sequence was as follows:

(1) move fingers fast to music
(2) move both hands up and down about six inches
(3) move both hands above head and back to chest level
(4) move one hand high and down, the other high and down
(5) Move both hands forward to arms length and back to to first position.
(6) move one hand forward and back, then the other hand forward and back.
(7) have students stand up and bounce/bend knees in rhythm to music while doing all patterns with hands and arms as above.
(8) balance on right foot then shift balance to left foot while continuing movements of knees, hands and arms
(9) Do everything and turn around.

It did not matter if the students did not follow exactly. They seemed to enjoy whatever they could follow.

B. Play-drama for non-verbal expressions were explored while listening to short descriptive orchestral compositions. It was hoped that the students would learn to use creative body movements to express ideas and feelings that would stimulate their personal verbal comments and discussions among the other students.

Example: Music: The Carnival of the Animals by Saint-Saens

The students listened to the music and described the animals as big/small, moving big/small or fast/slow, walking, running, hopping, sliding, etc. Students then moved their fingers on the desk, hands and arms in the air, or hands, arms and torso while standing in one place. A few of the animals were demonstrated while walking around the room, ex. the elephant.

Example: Music: The Sorcerer's Apprentice by Dukas

It was hoped that the children would discuss the story and would pretend to pantomime movements to express the story.

The film strip was shown while the record was played. Some discussion was stimulated. But the project was dropped as the students seemed bored with this musical selection. The researcher suspected that these teenagers had had too many repetitions of the same activity: look at the same film strip, listen to the same record, many times throughout their school years. Now the attention span or interest level was very minimal. It seemed too late at that time in the research project to start another pantomimic game with a programmatic orchestral composition.

The researcher had hoped to discuss the musical expressions for events in the story such as loud (strong), high(delicate), soft (mysterious), fast(chase), slow(dreams), and others.

Procedures for Specific Objective #4: How can group discussion, while listening to contemporary popular songs, and short classical recordings, stimulate and expand the use of vocabulary in the social conversational skills?

This specific objective was concerned with the trainable mentally retarded students' verbal relations to other people: his peers, the researcher, and his teacher.

The researcher was concerned with encouraging an enlarged spectrum of expressions and feelings for the trainable mentally retarded students in inner city schools. It

was believed that these teenaged students had experienced many feelings that could be coordinated with musical expressions.

It was the belief of the researcher that these activities must be experienced for a feeling of accomplishment and happiness before the retarded students in inner city schools would be able to verbalize his thoughts or participate in a discussion with his peers or the researcher.

It was hoped that the student would become less defensive and less reserved in the situation of pretend while listening to music.

Example: Selections performed by Stevie Wonder, James Brown, Jackson Five and others.

The students exhibited their feelings and partial communication with each other, the researcher and the teacher of the class by facial expressions of enjoyment and body language of relaxed positions or movements. But the verbalization was limited to the texts of the songs, some basic facts about the artists' personal lives, and very general terms of approval for the recordings.

Procedures for Specific Objective #5: How can token reinforcements be used as rewards for encouragement to try new verbal activities or skills?

At each class session, the researcher carried a clipboard with a page for each class, giving the names of the individual students. At each class session, the researcher marked which students were present or absent during the tone-matching games.

After the researcher felt a rapport with the students for all of the activities in the general music lesson plan had been established, the plan for token reinforcements for encouragement of new verbal activities or skills was introduced.

The plan was announced that each student who received nine pluses for the three class sessions would receive a treat on the last session of the week.

Pluses were noted for participation in the various musical activities. No minus was given for lack of participation or for poor quality of participation.

For example, after the tone-matching game, the researcher would call each name and ask, "Did you do the exercise?" The student would nod or say yes. Then both the

researcher and the student would acknowledge the work and the researcher would reply, "That is a plus for _____" and very obviously mark the plus on the class page.

The same procedure was followed for singing the song and for one other musical activity. Therefore, it was possible for each student to receive at least three pluses for each class session.

At the end of the third session in the week, the researcher would add up the pluses out loud for each student. As the name of the student with nine pluses was called, he would come to the front of the room and choose his treat/reward.

Some of the treats that the researcher took to the classes were various candy bars, potatochips/corn curls/corn chips, or packages of life savers. As a side reference to the latter, the researcher noted that "blue does not sell." None of the life savers in the blue packages were chosen as the red, yellow, green and multicolored were preferred.

The researcher noted that the students were as pleased to have the recognition of success as to have the receipt of the treat. But it was sad to note that the fear of failure in a "new verbal/musical skill" far overpowered the desire for an extra plus.

It was very doubtful if the students would have tried a <u>new</u> activity for a plus, even if it were necessary to receive a treat. Most of the time it seemed that the students participated in the musical activities because they wanted to participate. The receipt of the token reward, a plus, was an added bonus that their participation was correct, a success.

Even so, the researcher is of the opinion that the token reinforcements were particularly important for the students in an inner city school who may not have been trained for or have associated with the middle-class achievement system of study for its own sake.

CHAPTER V

RESULTS

This pilot project was designed to investigate the feasibility and functionalism of using musical materials and activities to improve the speech articulation and conversational skills of trainable mentally retarded students in inner city schools. The results of this project are presented in this chapter. Discussion of these results along with implications for educational practices and recommendations for further research will be found in the final chapter.

Analysis of covariance was used for the posttest scores using the pretest scores as a covariate. The level of significance was .05.

From Table II the null hypothesis was accepted. The first research hypothesis was rejected. There is no significant difference between the experimental group and the control group. However, the experimental group gained higher than that of the control group; but the difference was not high enough to be statistically significant.

From Table III the null hypothesis was accepted. The second research hypothesis was rejected. There is no significant difference between the experimental group and the control group. However, the experimental group gained higher than that of the control group; but the difference was not high enough to be statistically significant.

Addendum

Because the two classes at School B were self-contained and independent, the teacher of the experimental class rearranged her learning units so that she could review and reinforce the musical activities as presented by the researcher.

Because of this reinforcement, the scores for the two classes of School B were analyzed in similar manner to Table II and Table III.

In Table IV, the Templin-Darley Test of Articulation,

the experimental class at School B gained higher than the control group at School B, but the difference was not high enough to be statistically significant.

In Table V, The Peabody Picture Vocabulary Test, the experimental group at School B showed significantly higher gain than the control group.

The experimental classes at School A were scheduled differently into many multi-level learnings groupings. It was not possible for the teachers with the two experimental classes at School A to review or reinforce the musical activities as presented by the researcher.

TABLE II

Analysis of Covariance of Posttest Scores
using the Pretest Scores as a Covariate

THE TEMPLIN-DARLEY TEST OF ARTICULATION - Schools A and B

S. V.	SS_x	SP	SS_y	SS'_y	d.f.	MS'_y	F
Treatments	1817.3	1654	1507.1	13.5	1	13.5	.28*
Error	8478.7	6887.4	7776.9	2183.0	44	49.6	
Total	10296		9285	2196.5	46		

*p > .05

	Control Group	Experimental Group
Pretest Mean	32.18	19.23
Posttest Mean	34.59	22.80

TABLE III

Analysis of Covariance of Posttest Scores
using the Pretest Scores as a Covariate

THE PEABODY PICTURE VOCABULARY TEST - Schools A and B

S. V.	SS_x	SP	SS_y	SS'_y	d.f.	MS'_y	F
Treatments	3429	2938	2516	0	1	0	o*
Error	14371	12032	11629	1555.0	45	34.56	
Total	17800	14970	14145	1555	47		

*p > .05

	Control Group	Experimental Group
Pretest Mean	59.70	42.03
Posttest Mean	61.53	46.39

TABLE IV

Analysis of Covariance of Posttest Scores
using the Pretest Scores as a Covariate

THE TEMPLIN-DARLEY TEST OF ARTICULATION - School B

S. V.	d.f.	SS'_y	MSS'_y	F
Between	1	17.980	17.98	.669*
Within	13	366.966	29.92	
Total	14	484.946		

*p > .05 There is no significant difference between the two groups

	Control Group	Experimental Group
Pretest Mean	16.0	18.5
Posttest Mean	17.25	22.7

TABLE V

Analysis of Covariance of Posttest Scores
using the Pretest Scores as a Covariate

THE PEABODY PICTURE VOCABULARY TEST - School B

S. V.	d.f.	SS'_y	MSS'_y	F
Between	1	189.669	189.669	5.164*
Within	14	514.162	36.72	
Total	15	703.831		

* $p < .05$ There is significant difference between the two groups. The experimental group is significantly higher than the control group.

	Control Group	Experimental Group
Pretest Mean	27.00	38.67
Posttest Mean	31.00	46.67

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

The major purpose of this pilot project was to study the feasibility of music as teaching media for improving the articulation and conversational skills of trainable mentally retarded students in inner city schools.

Using two nationally standardized and validated tests, The Templin-Darley Test of Articulation and The Peabody Picture Vocabulary Test, the analysis of the pretesting and posttesting scores showed that the experimental subjects showed improvement in speech articulation and vocabulary but not enough to be considered satistically significant.

Significant improvement was shown by the experimental class at School B in the scores of the Peabody Picture Vocabulary Test. The teacher of this class rearranged her classroom activities in order to review and reinforce the musical learnings as presented by the researcher.

It was noted that the improvement was in the test that showed recognition of a word without speaking that word. The researcher considered this to be meaningful for helping trainable mentally retarded students, based on one of the theories in language arts that a student must know the word and recognize the sound of the word before he will attempt to say the word.

In conclusion, the researcher would like to point out that this pilot project has demonstrated the possibility that musical activities and materials can be an effective educational tool for the improvement of articulation skills and conversational skills.

While this pilot project covered a period of only four and a half months, the researcher feels that a longer experimental period utilizing three weekly sessions given by a music specialist and augmented by the review and reinforcement by the classroom teacher would be warranted for further study.

Limitations

The Templin-Darley Test of Articulation tested the

enunciation of the students, rating their speech as correct or incorrect articulation as per the title of the text. But no scoring was possible for improvement of phonation or the sound that the student produced.

Several students, with minimal verbalization, seemed to show improvement in phonation: quality of sound, volume of sound, and range of pitches, all necessary ingredients and the first step for speech articulation.

One outgrowth of this project could not be measured by this test. One nineteen year old girl, previously to this project, had developed and maintained a rather elaborate system of communication through pantomime and gestures. During the experimentation period, this girl seemed to change her attitude toward speech and began to make elementary sounds and to try rudimentary exercises of the speech muscles. Her tongue seemed to relax somewhat and her lips began to form shapes or positions for enunciating some consonants. Her "improvement" in phonation and attitude toward speech would be recognized by the researcher as "significant" but would not be recognized by the speech articulation test.

Another element in the testing was of concern to the researcher, motivation of each student to "take" the test or to try to answer as many questions as possible or to stop "while still ahead" with answers of no risk.

Both of the tests were constructed so as to test how far or how much of the test was completed, and not how many correct answers out of the same total questions, by each student. For this reason, the researcher wonders how many students "quit" the test at some random time for some personal reason.

During the pretesting and the posttesting, the researcher was in the school building for any assistance as to equipment or coordination of students that could be given to the speech testors. The researcher did not go into the testing rooms with any of the students so as not to add another variable, the personal relation of each student to the researcher.

One exception was made for an emotionally disturbed girl. Her classroom teacher had gone with her for the pretesting but was absent on the day of the posttesting. This girl would not have gone by herself as did the other students so the researcher escorted her to the testing room. She began the testing very well and seemed to enjoy participating. But suddenly, she wanted the testor to "have her turn." When the testor did not "take her turn," the student

persisted several more times while not answering the questions that were a part of the test. Soon the student lost interest in the test, either did not answer the question or answered as if in a game of chance, this one or that one, etc. As a possible result of this, this student's posttest score was lower than her pretest score.

The researcher asked the testor particularly how another individual student reacted to the test. This student seemed very self-conscious of his age. He had reached the legal limit for staying in school, twenty-one years old, during the previous November and thus in June of the experimental period would be forced to leave the classroom of his friends and familiar activities. It seemed to the researcher, all during the experimental period, that this student could perform, talk and take part in the musical activities as well as relate to his peers and the adults when he felt very certain of successful results. This observation seemed confirmed when the testor replied that she thought the student could have gone much further in the test and could have scored better. His score for the posttest showed only marginal improvement.

Some Observations

1. TMR students, like normal students, can be expected to react differently to musical experiences.

A. Pace of Lessons

Many of the TMR students found the music activities in the class offered them a chance to do things with the researcher or with others in the class. Thus the TMR student, who was not a leader or "king" of a group, was able to find a personal satisfaction in the musical activities, to feel a social equality to the leaders in the class.

The researcher was under the impression from numerous readings in the education of exceptional children that TMR students would tend to be passive and over conforming.

This pilot project proved this theory to be completely incorrect. The researcher found it necessary to change the pace of the lesson plans as well as the sequence of the lesson plans, in order to incorporate all of the usual activities of an average class music lesson.

The TMR students were not interested and did not respond to new songs taught at a slow pace of singing. They seemed even to resent the slower pace as one for "babies" and preferred a regular pace with more repetitions.

B. Content of Lessons

The researcher noted that the TMR students in inner city schools enjoyed action songs, partner choice songs, black spirituals, contemporary folk and popular songs.

The TMR students participated in the various musical activities of the general music lesson plan. The short length of each activity and the variety of pace in the sequence of activities seemed to sustain the attention span. The TMR students particularly enjoyed the Orff rhythm patterns and the drum stick activities.

C. Singing Ability

Some of the TMR children could produce a more than adequate sound for singing as long as they were interested in the song. But they made no effort to hide their disinterest or to be polite in pseudo-interest.

Several of the TMR students had only minimal pitches of a very low range for singing. But the researcher was happy to hear these brave attempts to sing and noticed that some of these students showed improvement in the range of pitches as well as increased enthusiasm for participating in the singing activities.

D. Sound Level of Classes

The TMR children in inner city schools have had very little, if any, training in social graces such as "don't be so loud" or "don't be rude by interrupting or talking too loud."

This noise level seems to be rising in all intellectual, social and economic levels of society and all ages of society. Some sociologists believe that television watching which includes talking about and during the program and talking even louder to drown out the commercials has made tremendous changes in the social sound levels. Today's audience members talk during classical musical programs at Lincoln Center and other well known culture centers.

The researcher felt that the sound level of the TMR classes might be higher than classes of normal students. It would be most difficult, almost impossible, for a TMR student, who has suffered so many hurtful failures, to be calm and express his joy inwardly and silently when he finally experiences success in an activity.

The personal rapport of the researcher with the TMR students seemed to be the same as students in normal

classes. The TMR students "tested" the researcher early in the project just as normal students do.

2. The TMR students can have as long attention span as average students provided the musical activity is within their capacity of execution.

After a few lessons in which the researcher experienced the changes in attention span, the following was noted: the TMR children used the short attention span or the sudden shift of attention away from the activity as a defense mechanism.

The researcher first noted that the attention span was the shortest whenever a new aspect of an activity was introduced. Thus the TMR student by withdrawing, by not paying attention or by showing disinterest in the activity could protect himself from another hurting failure.

It was noted by the researcher that it was necessary to repeat a new aspect of an activity several times before she could coax one student to join her in the activity. But as soon as one student participated in the activity, then it was observed that the "disinterested" students had known all along everything that the researcher was doing. Now that one student had tried the activity and had not failed, others would try the activity. Thus the disinterested students felt that they could do the same without the risk of failure and its sad results.

The pace of the lessons and the content of the lessons had to be adapted somewhat in order to accomodate the many repetitions.

3. The individual's needs may affect the group's needs.

The researcher noted that one of the children might become very independent of the group. He might withdraw into an inner mental area. Most frequently he went off by himself in some physical activity. These withdrawals seemed to be spontaneous and not caused by some action of the researcher or other students in the class. The researcher noted that if the student were allowed to "do his own thing" and if no attention by the researcher or other students was paid to the independent action, soon the outsider would finish his activity and rejoin the group.

The researcher noted that the instant an activity ne needed a "chosen" student, the entire class became anxious that he would not be chosen. But if the researcher promised

that every student would have a turn as the chosen one, then each student would be satisfied to wait for his turn.

This must be qualified that each turn must be in today's class session and not promised for tomorrow's. The TMR students did not relate to waiting for their turn on tomorrow as well as normal students do. Tomorrow was not a real possibility for many TMR students and today's rejection as the chosen student was too near and too painful.

Each TMR student must have frequent reassurances through acceptance by his peers or by the researcher. This seemed to be the philosophy behind the successes of token reinforcements used in the classes. They were positive and definite badges of success.

4. The activities can be planned to provide opportunities for success for individuals, small groups and the whole class.

It was the researcher's belief that it was impossible to fail in a musical activity. No matter what sounds a student made, that was his musical expression and no one could tell him that he was wrong. The researcher tried to express "new" but never "better" means of expressing musical ideas. Thus the researcher accepted every child's musical contribution and only offered to help him to find more ways of expressing himself musically.

As the TMR student experienced success within the whole class, he seemed to gather courage to try with a few students in a small group, and, finally, to try the musical activity as a proud soloist.

5. Expectations of the level of an individual's performance must vary in relation to the TMR child's physical or emotional condition, the classroom atmosphere due to the calendar - day, month, season, or to the outside weather.

The researcher often wished she could have had some vital information about each TMR student before starting each session, such as:

(1) did you have any breakfast this morning?
(2) did you sleep well last night?
(3) do you feel well today?
(4) did you take your medication as prescribed?
(5) is any member of your family sick?
(6) is any member of your family in trouble?

Some times a well-prepared lesson plan either collapsed or almost disintegrated because one or more TMR students were not in the mood for a classroom activity, musical or any other subject. At that time, the researcher had to fall back on former successful activities, one after another until the class mood shifted to cooperation.

It seemed a shame to the researcher that the whole class should be disturbed by the unhappy, angry, or disappointed mood of one or two children. But the class did not seem to mind, as if they understood and were very sympathetic to the problems of the upset student.

The TMR students, as a group, seemed more susceptible than normal students to the weather such as approaching storms, cloudy days, rainy days; to the calendar such as Monday vs. Friday, January after Christmas vacation vs. May and tired of school mood, even monthly cycles as full moon or new moon.

At these times, the researcher found it best to ignore the undesirable behavior and to concentrate on the suitable actions even if only a few students were performing them. Some times the contrary acting student would get the anger released and then would rejoin the researcher and the other students.

6. Music activities must be carefully selected to suit the daily functional abilities and the momentary interests of the TMR students.

All music activities should be carefully chosen with the first objective: success for each TMR student. The second objective could be the next musical learning in the unit sequence.

Every musical learning must be analyzed for all levels of participation to the smallest aspect. Thus each learning is only a very small step forward and not a possible painful attempt at a leapforward in a new skill. Whereas a normal student seems to enjoy a new challenge which has a slight risk, the TMR student hits the panic button if there is the smallest chance of danger for another painful failure.

It is desirable that the researcher know each child well enough so as to set individual objectives for each child within each activity of the lesson plan.

The first objective of the researcher was to establish communication with the TMR students and to obtain their attention to and acceptance of the musical activities.

Personal communication was considered essential for verbal communication.

The researcher began by teaching new songs, recalling possible favorite songs, and by using body movements as a physical release and expression while listening to popular orchestral recordings. The very strong rhythmic recordings were more interesting than the smoother, descriptive classical recordings. The sound level of the recordings did not seem to affect the interest, only the definite rhythmic patterns were needed for interest.

On the whole most of the students showed improved attitudes and behavior toward the musical activities from "music! ugh!" to "oh, hello, how are you today!"

Toward the end of the experimental period, even the researcher was a little tired of the basic rhythmic pattern: L L SS L. So she wrote four patterns on the chalk board:

(1) L L SS L
(2) L SS L SS
(3) L L L---- (the third L has two pulses)
(4) SS SS SS SS

These rhythms were practiced with the drumsticks, by the researcher and the whole class. Next the researcher played one pattern and asked the students to choose which number of pattern. The individual students then would play a pattern and the class would choose which number.

These patterns were practiced for about fifteen minutes on a Thursday and again for about seven minutes on Monday. On Tuesday, the researcher clapped the first pattern and asked the class what was that. The researcher expected that the class would answer, L L SS L. But they answered "That's Number One." Then the researcher asked what was Number 2 and they answered for that pattern and for all of the others.

The researcher asked the teacher if she had practiced these patterns with the class and her answer was that it had been impossible because of the group scheduling. It is to wonder if we give up too soon on the trainable mentally retarded and not let successful motivation work and see what happens.

It seemed to the researcher that the TMR students conversed more with her at the end of the pilot project than at the beginning. This improvement may have been due to the musical activities easing the social pressures.

All of these experiences seemed to reinforce the personal philosophy of the researcher:

(1) as far as possible, treat the mentally retarded student like a human being with the same feelings as a normal student.

(2) as long as time permits, repeat activities today, tomorrow, etc., in exactly the same manner, until success is experienced by the students.

Recommendations

Many of the students involved in this study improved in several specific performances. The researcher noted that considerable of this learning was done through their ears.

The researcher noted that the TMR students learned fairly quickly when taught a rote song, an activity which depends on learning through the ears. But when an activity required learning through the eyes, such as chalkboard work, the TMR student withdrew almost instantly, either silently or vigorously shifting of attention into some other physical expression.

The researcher believes that the TMR students in inner city schools need many rote experiences (learning through the ears) before they can understand and learn visible symbols (words) or signs (numbers) which are taught through the eyes.

Musical activities are notable and conspicuous for their capacity and variety of learnings for the ears.

Consideration should be given to the content of the songs and other musical activities so as to express the emotional interests and concerns for each age level of the trainable mentally retarded students. The researcher noted that the TMR students had similar emotional reactions as the average students, including flirting with the opposite sex.

The materials must be the same for the TMR teenage students as for average students. But the methods must concentrate on repetitions of small steps for improvement using the rote method as a constant base.

Since this pilot project showed some interesting and intriguing aspects for the improvement of articulation and vocabulary, the researcher would welcome the challenge of a longer experimental period. This would offer many opportunities for rote learnings of aural, physical and affective experiences for trainable mentally retarded students.

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